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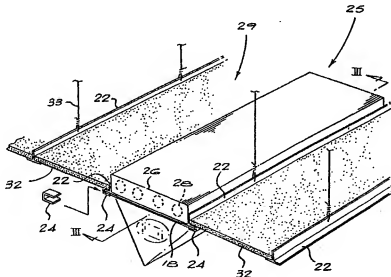
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(54) Title: DISPLAY DEVICE



(57) Abstract

A display device installation (25) includes a display device (10) suspended from a ceiling (29). The display device (10) has a base (17), two sidewalls (14), two endwalls (16) and an opening (12). The opening (12) faces the ceiling (29). A light box (26) is located directly above the display device (10) so that light from the light box (26) can enter the display device (10) through the opening (12) and highlight advertising material (20) applied to the sidewalls (14) and endwalls (16) of the display device (10). The display device (10) has a lip (18) extending around the periphery of the opening (12). The display device (10) is suspended from the ceiling (29) by this lip (18).

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**DISPLAY DEVICE****FIELD OF THE INVENTION**

This invention relates to a display device.

**SUMMARY OF THE INVENTION**

According to the invention a display device installation includes a display device suspended from a ceiling, the display device having a base, at least one sidewall and an opening which faces the ceiling with a light source being located above or within the display device.

The display device is preferably a container which may be hollow.

The display device may include two sidewalls and two endwalls. The sidewalls may be inclined to improve the visibility of display material on the sidewalls from below the display device. Likewise the endwalls may be inclined to facilitate visibility of display material on the endwalls from below the display device.

A screen may extend across the opening at least to hinder the access of insects into the display device.

Preferably a lip extends peripherally around the opening and the lip is secured directly or indirectly to the ceiling by fastening means. The fastening means may be clips.

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Hinge means which directly or indirectly secure the display means to the ceiling may be provided in addition to the fastening means so that when the fastening means have been unfastened, the display device can be opened via the hinge means to provide access to the light source and to the interior of the display means.

The hinge means may comprise at least one elongate flexible member which may be a chain, rope, wire or the like.

The ceiling may be a suspended ceiling or a solid ceiling.

The display device is preferably suspended from the solid ceiling via a frame which is secured to the solid ceiling.

The display device is preferably suspended from the suspended ceiling via a frame on which ceiling boards surrounding the display device are supported.

The display device may be made of a translucent polymeric material.

The length of the display device may be about 1200 mm and the width of the display device may be about 600 mm. In another form of the invention the length of the display device may be about 600 mm and the width of the display device may be about 600 mm.

The light source is preferably at least one fluorescent tube.

According to another aspect of the invention a display device for suspension from a ceiling includes a base, at least one sidewall, an opening and

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suspending means for suspending the device from the ceiling.

The display device may include two inclined sidewalls and may include two inclined end walls.

The suspending means may be a lip extending around the opening.

The display device may be made of a translucent polymeric material.

A screen may extend across the opening.

According to another aspect of the invention a method of displaying material includes the steps of suspending a container from a ceiling, providing display material on or in the sides of the container, and illuminating the interior of the container to increase the visibility of the display material from below the display device.

The invention will now be described by way of a non-limiting example with reference to the accompanying drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**Figure 1** is a perspective view of a display device according to the invention;

**Figure 2** is a perspective view of the display device suspended from a ceiling to form a display device installation;

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- Figure 3** is a cross-sectional side view on line III - III of figure 2;
- Figure 4** is an exploded perspective view of a display device installation according to another embodiment of the invention;
- Figure 5** is an assembled perspective view of figure 4;
- Figure 6** is an exploded perspective view of a display device installation according to another embodiment of the invention;
- Figure 7** is a cross-sectional side view of figure 6 when assembled on line VII - VII;
- Figure 8** is the same view as figure 7 but showing the display device hinged open to allow access to its interior;
- Figure 9** is a partly cut-away perspective view of a display device installation according to another embodiment of the invention;
- Figures 10 & 11** are perspective views of further embodiments of display devices according to the invention;
- Figure 12** is a side view of a further embodiment of a display device according to the invention;
- Figure 13** is an end view of the display device of figure 12;

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**Figure 14** is an exploded perspective view of a display device secured to a concrete ceiling;

**Figure 15** is a cross-sectional assembled view of figure 14;

**Figure 16** is an exploded perspective view of a display device and light box according to another embodiment of the invention; and

**Figure 17** is a cross-sectional end view of a display device installation including the display device and the light box of figure 16.

#### **DETAILED DESCRIPTION OF THE DRAWINGS**

Referring firstly to figures 1 to 3, a multidirectional display device 10 includes an opening 12, two inclined sidewalls 14, two vertical end walls 16, a base 17 and a lip 18 which extends around the periphery of the opening 12. The display device 10 is made of perspex. Advertising material 20 is applied to the two inclined sides 14 and to the two vertical end walls 16. The advertising material may however be in the form of cut-outs (not shown) in the side walls 14 and the end walls 16 through which cut-outs light can be transmitted.

The display device 10 is suspended from T-bars 22 of a suspended ceiling 29 by means of clips 24 directly below an electrical light box 26 to form a display device installation 25. The electrical light box contains four fluorescent tubes 28 and a diffuser 30. Ceiling boards 32 which are supported on the T-bars 22 surround the display device 10. Light from the fluorescent tubes is

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transmitted into the display device 10 to provide back-lighting for the advertising material 20 on the inclined sides 14 and the vertical end walls 16.

The display device 10 provides a means of advertising on a ceiling. Ceilings have hitherto been largely unused for advertising purposes. The term ceiling is used herein to include the T-bars 22 on which the ceiling boards 32 are supported.

Referring now to figures 4 and 5, a display device 10.1 is the same as the display device 10 except the end walls 16 are inclined and the opening 12 is closed by a screen 23 made of a fine mesh to prevent insects entering the display device 10.1.

The display device 10.1 is lowered into an opening 27 in a suspended ceiling 29. The suspended ceiling 29 consists of ceiling boards 32 supported on T-shaped supports 22 which are suspended from lengths of wire 33. Although not shown the T-shaped supports 22 also extend orthogonally to the long sides of the ceiling boards 32 so that the opening 27 is surrounded on four sides by the T-shaped supports 22.

Once lowered into the opening 27, the lip 18 of the display device 10.1 seats on top of horizontal sections 34, and lies adjacent the vertical sections 36, of the T-shaped supports 22. A light box 26, of substantially the same length and width as the display device 10.1, is then lowered onto the lip 18 of the display device 10.1 to form a display device installation 25.1.

Referring now to figures 6 to 8, the display device 10.1 is secured to the bottom of the T-shaped supports 22 by clips 24 to form a display device installation 25.2. Spaced chains 42 are secured at one of their ends along one



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of the long sides of the display device 10.1, and at the other of their ends to the light box 26. When the clips 24 are removed, the display device 10.1 can be opened, as shown in figure 8, so that access can be had to the interior of the display device for cleaning and maintenance purposes.

Referring now to figure 9, a display device 10.2 is shown suspended from a suspended ceiling 29.1.

Figures 10 and 11 illustrate two further embodiments of the display device as 10.3 and 10.4 respectively.

Referring now to figures 12 and 13, a display device 10.5 is the same as the display device 10.1 except for the addition of slideways 44, into which slides 46 containing display material can be slid. This provides the ability to change the display material by simply changing the slides 44. This obviates the need to replace the entire display device to change the display material.

Referring now to figures 14 and 15 a display device installation 25.3 includes the display device 10.1 clipped by clips 24 to an aluminium frame 48. The aluminium frame 48 is secured to a concrete ceiling 50 by screws 52. The lip 18 of the display device is clipped to a lower flange 54 of the frame 48 and holes 56 are provided in an upper flange 58 of the frame 48 for the screws 52. The upper flange 58 abuts the concrete ceiling 50.

A fluorescent light tube fitting 60 is secured to the ceiling 50 above opening 12 to the display device 10.1.

Referring finally to figures 16 and 17, a display device 10.1 is slid into a frame in the form of a light box 26.1 from one end of the light box 26.1. The

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light box is fixed to a concrete ceiling 50 with screws 52.

The light box 26.1 has two lips 62 on which the longitudinal lips 18 of the display device 10.1 seat. The light box has two outer slats 64 through which the screws 52 extend and one central slat 66. Four fittings 68 are provided within the light box 26.1 for fluorescent tubes. Starters and transformers 70 for the fluorescent tubes are located on the central slat 66.

A closure strip 72 is secured to light box 26.1 once the display device 10.1 has been slid into the light box. The closure strip 72 closes the light box 26.1 and prevents the entrance of insects into the display device 10.1. The closure strip is stepped to accommodate the lip 18 of the display device 10.1.

A gasket 74 made of compressible material such as rubber is located on top of the light box 26.1 around the periphery of the light box 26.1 to provide a seal between the concrete ceiling 50 and the light box 26.1 to prevent light spillage and the entrance of insects into the display device 10.1.

It will be appreciated that many modifications or improvements of the invention are possible without departing from the spirit or scope of the invention.

**CLAIMS**

1. A display device installation including a display device suspended from a ceiling, the display device having a base, at least one sidewall and an opening which faces the ceiling with a light source being located above or within the display device.
2. The display device installation of claim 1 wherein the display device is hollow.
3. The display device installation of claim 1 or claim 2 wherein the display device includes two sidewalls and two end walls.
4. The display device installation of claim 3 wherein the two sidewalls are inclined to improve the visibility of display material on the two sidewalls from below the display device.
5. The display device installation of claim 3 or claim 4 wherein the two end walls are inclined to facilitate visibility of display material on the two end walls from below the display device.
6. The display device installation of any of the above claims including a screen extending across the opening at least to hinder the access of insects into the display device.
7. The display device installation of any of the above claims wherein the display device includes a lip extending peripherally around the opening.

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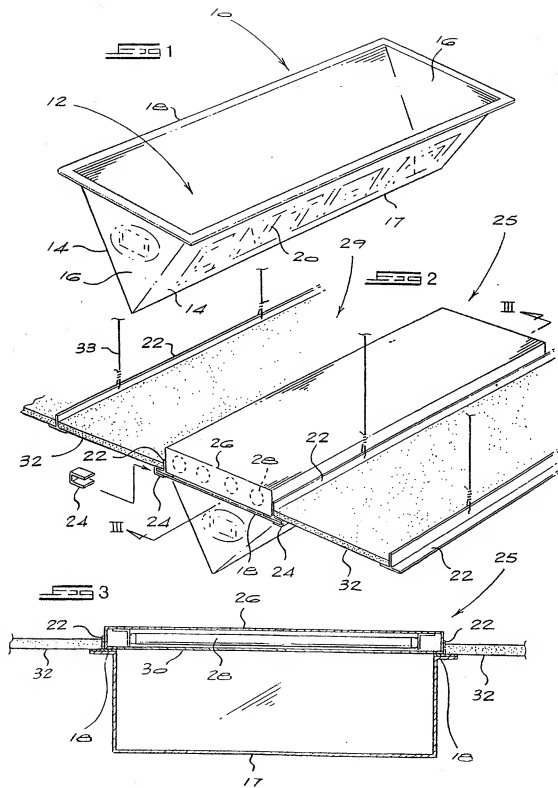
8. The display device installation of claim 7 wherein the lip is secured directly or indirectly to the ceiling by fastening means.
9. The display device installation of claim 8 wherein the fastening means are clips.
10. The display device installation of claim 8 or claim 9 including hinge means which directly or indirectly secure the display means to the ceiling so that when the fastening means have been unfastened the display device can be opened via the hinge means to provide access to the light source.
11. The display device installation of claim 10 wherein the hinge means comprise at least one elongate flexible member.
12. The display device installation of any of the above claims wherein the ceiling is a suspended ceiling or a solid ceiling.
13. The display device installation of claim 12 wherein the display device is suspended from the solid ceiling via a frame which is secured to the solid ceiling.
14. The display device installation of claim 12 wherein the display device is suspended from the suspended ceiling via a frame on which ceiling boards surrounding the display device are supported.
15. The display device installation of any of the above claims wherein the display device is made of a translucent polymeric material.

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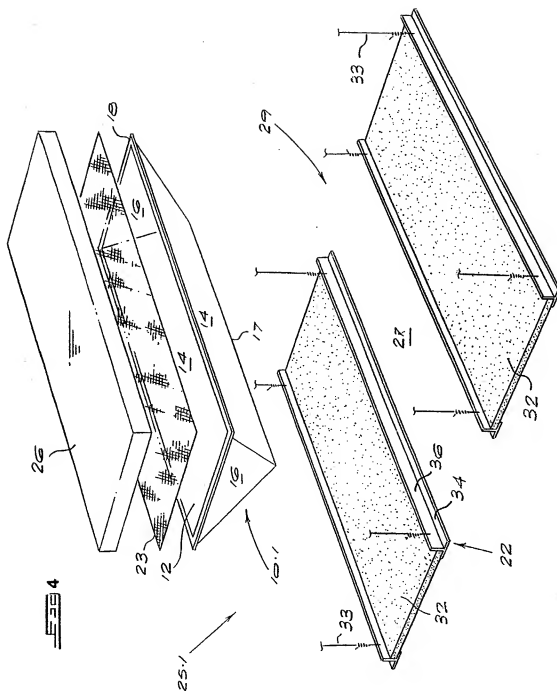
16. The display device installation of any of the above claims wherein the length of the display device is about 1200 mm and the width of the display device is about 600 mm.
17. The display device of any of claims 1 to 15 wherein the length of the display device is about 600 mm and the width of the display device is about 600 mm.
18. The display device of any of the above claims wherein the light source is at least one fluorescent tube.
19. A display device for suspension from a ceiling including a base, at least one sidewall, an opening and suspending means for suspending the device from the ceiling.
20. The display device of claim 19 including two inclined sidewalls.
21. The display device of claim 19 or claim 20 including two inclined end walls.
22. The display device of any of claims 19 to 21 wherein the suspending means is a lip extending around the opening.
23. The display device of any of claims 19 to 22 wherein the display device is made of a translucent polymeric material.
24. The display device of any of claims 19 to 23 including a screen extending across the opening.

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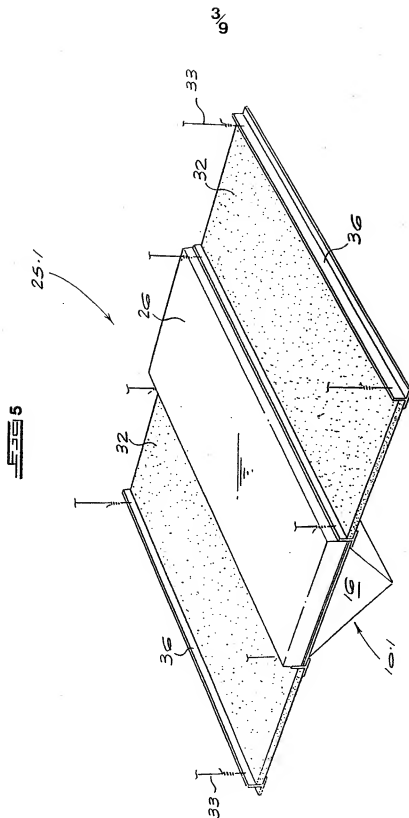
25. A method of display material including the steps of suspending a container from a ceiling, providing display material on or in the sides of the container, and illuminating the interior of the container to increase the visibility of the display material from below the display device.
26. A display device installation substantially as herein described and illustrated with reference to the accompanying drawings.
27. A display device substantially as herein described and illustrated with reference to the accompanying drawings.
28. A method of displaying material substantially as herein described and illustrated with reference to the accompanying drawings.

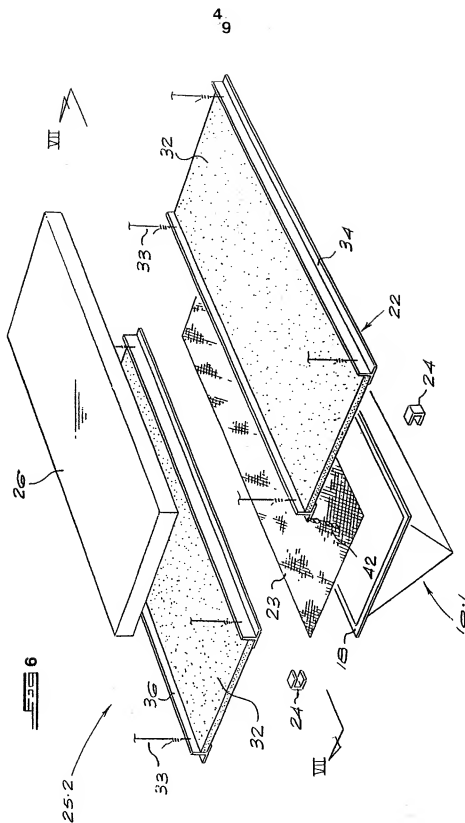
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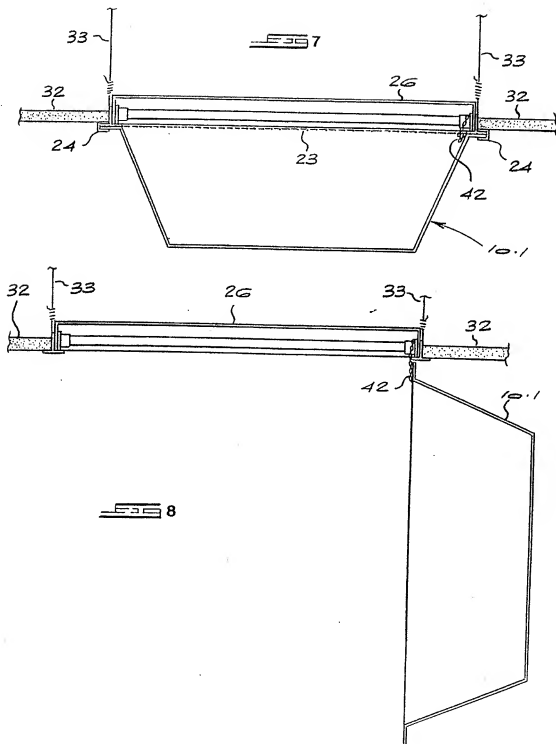




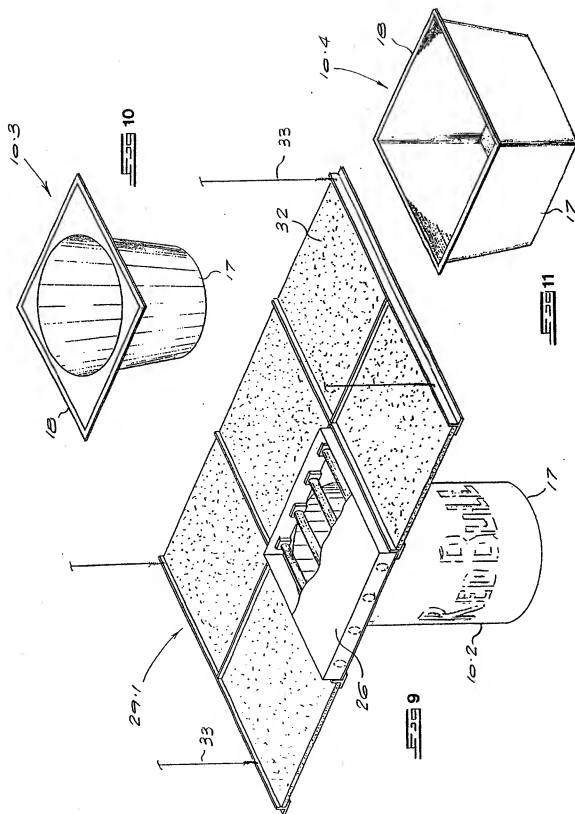




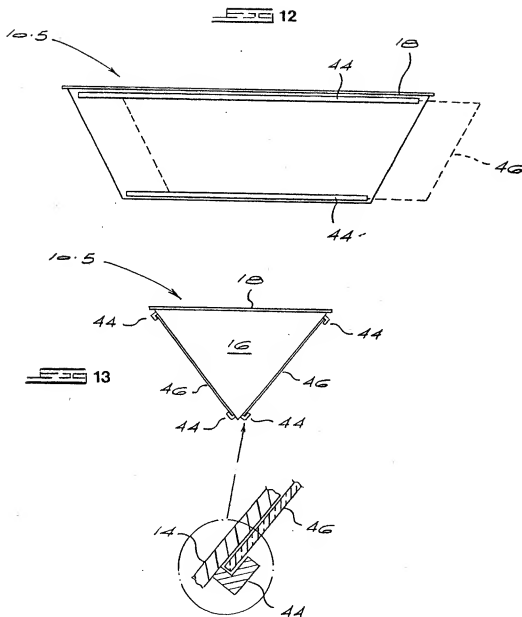
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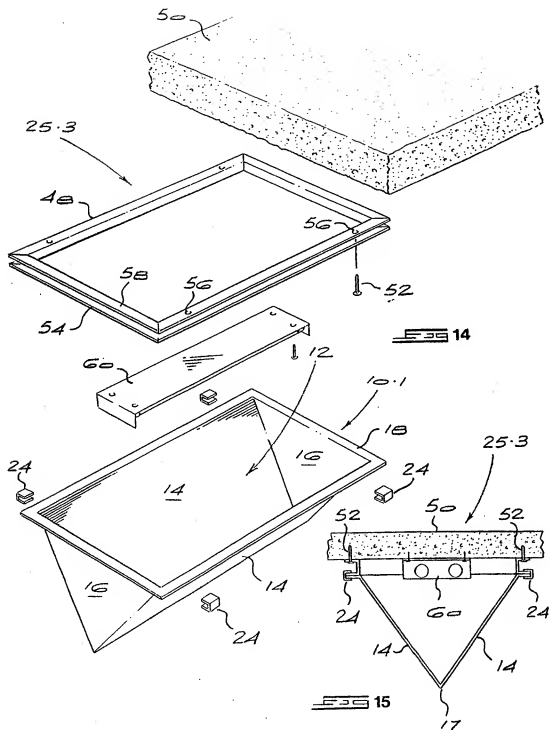


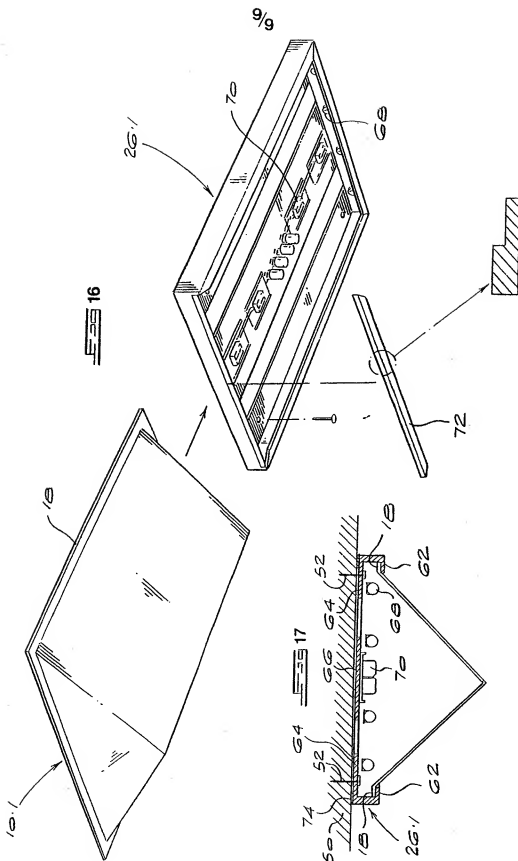
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# INTERNATIONAL SEARCH REPORT

Int. Jomat Application No  
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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G09F7/18 G09F13/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	the whole document	6, 10, 11
X	US 5 282 331 A (FELL MICHAEL J) 1 February 1994 (1994-02-01)	1-5, 7-9, 12-28
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X	US 5 274 938 A (MCDONALD WAYNE C ET AL) 4 January 1994 (1994-01-04)	1-5, 7-9, 12-28
	abstract; claims; figures	
Y	US 4 856 216 A (GROSS JAN S) 15 August 1989 (1989-08-15)	6
	column 5, line 35 - line 54; figures 17, 18	
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## C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	US 5 128 850 A (JUODVALKIS UOSIS) 7 July 1992 (1992-07-07) the whole document -----	10, 11

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Information on patent family members

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